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A catalyst reaction segment 103 is connected to a material gas supply pathway 105 connected to a material gas supplying segment 101, a material gas exhaust duct 109 connected to a fuel cell, and a branched pathway 108. One branched pathway 108 functions as the cooling branch and the other branched pathway 108 functions as the heating branch.

At pages 13-14, please amend the paragraph beginning at page 13, line 28 and ending at page 14, line 6 to read as follows:

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FIG. 1 is a schematic cross-sectional view of the hydrogen purifying apparatus in Embodiment 1-1 in accordance with the present invention. As shown in FIG. 1, the hydrogen purifying apparatus comprises a catalyst layer 1; a reformed gas inlet 2; an air supply duct 3; an air flow rate control valve 4; a cooled water supply duct 5; a cooled water volume control valve 6; a heat exchanger 7; a heater 8; a reaction chamber (or reaction segment) 9; a reformed gas outlet 10; and a reformed gas pathway 12.

In the claims:

Please cancel claims 2, 5, 7 and 18 without prejudice.

Please amend claims 1, 3, 6, 8-9, 12, 14, 16-17 and 19 to read as follows. A marked-up version of amended claims 1, 3, 6, 8-9, 12, 14, 16-17 and 19 is attached hereto.

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1. (Twice Amended) A hydrogen purifying apparatus for oxidizing and removing carbon monoxide in a reformed gas containing carbon monoxide in addition to a main component of hydrogen gas, comprising a reaction segment having a catalyst bed for oxidizing carbon monoxide, a reformed gas inlet for supplying said reformed gas to said reaction segment via a reformed gas pathway, an oxidant gas supplying segment for supplying an oxidant gas to

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said reformed gas pathway, a water-cooled apparatus for cooling an upstream side of said catalyst bed, and means for heating a downstream side of said catalyst bed,

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wherein said means for heating the downstream side of said catalyst bed is selected from the group consisting of an electric heater and a portion of the reformed gas pathway formed in proximity with said catalyst bed via a partition so as to heat said downstream side of said catalyst bed by said reformed gas before passing through said water-cooled apparatus.

3. (Twice Amended) The hydrogen purifying apparatus in accordance with claim 1, wherein an upstream side portion of the catalyst bed is formed of different catalyst materials than that of a downstream side portion, and the catalyst constituting said downstream side portion exerts an activity at lower temperature than the catalyst constituting said upstream side portion.

4. (Amended) The hydrogen purifying apparatus in accordance with claim 1, further comprising a gas flow rate control valve capable of changing an amount of oxidant gas to be supplied in correspondence with a temperature of said catalyst bed.

5. (Amended) The hydrogen purifying apparatus in accordance with claim 1, wherein said reformed gas flows in a first direction prior to passing through said water-cooled apparatus, and passes through said catalyst layer in a second direction, wherein the first direction and second direction are opposing.

6. (Amended) The hydrogen purifying apparatus in accordance with claim 1, wherein said reaction segment is placed outside the reformed gas pathway before passing through said catalyst bed.

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12. (Twice Amended) The hydrogen purifying apparatus in accordance with claim 1, wherein a branched pathway is formed which bifurcates downstream from a connection between said reformed gas pathway and said oxidant gas supplying segment, thereby forming a catalyst bed heating branch and a catalyst bed cooling branch, the catalyst bed heating branch being connected to said reaction segment at a middle point of said catalyst bed, the catalyst bed cooling branch being connected to said reaction segment at an upstream point of the catalyst bed.

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14. (Amended) The hydrogen purifying apparatus in accordance with claim 13, wherein said reaction segment has at least a two segmented catalyst bed and at least an uppermost catalyst bed has a part with no catalytic function or a part with low reactivity to CO.

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16. (Twice Amended) The hydrogen purifying apparatus in accordance with claim 13, wherein said reaction segment comprises an uppermost honeycomb shaped catalyst bed and a lowermost honeycomb shaped catalyst bed, where an open area of a honeycomb lattice of the uppermost catalyst bed is larger than an open area of a honeycomb lattice of the lowermost catalyst bed.

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17. (Amended) The hydrogen purifying apparatus in accordance with claim 14, wherein the uppermost catalyst bed comprises a platinum group metal supported by an alumina group material and the lowermost catalyst bed comprises a platinum group metal supported by a zeolite group material.

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19. (Amended) The hydrogen purifying apparatus in accordance with claim 14, wherein said catalyst bed contains a temperature measuring apparatus segment and means for controlling a supplying amount of said oxidant gas according to a temperature as measured.--

REMARKS